

REMARKS

The examiner has objected to the drawings. It is believed that the proposed amendments for the drawings provide a full response to the objections.

Claim 2 has been withdrawn from consideration as being directed to a non-elected species. FIGS. 3a and 3b show the cooling element (fin 11) at an angle of 45° to the longitudinal direction (13) of the circulating element. Applicant therefore requests that claim 2 be rejoined.

Further, applicant believes that claims 1 and 17 at least cover not only FIGS. 3a and 3b but also FIG. 4. Therefore, if claims 1 and 17 are allowed, applicant will be entitled to consideration of claims that are specific to FIG. 4.

Applicant gratefully acknowledges that the examiner has withdrawn the rejection over Itoh et al.

Claims 1 and 17 stand rejected under 35 USC 102 and/or 35 USC 103 over JP 48-27263. Applicant respectfully traverses.

The present invention, as defined in claim 1, is concerned with a cooling element used in a heat exchanger in which the cooling medium flows inside a circulating element to which the cooling element is bonded. The cooling element is provided with louvers and the angle of the cooling element to the longitudinal direction of the circulating element and the angle of the louvers to the surface of the cooling element are substantially equal in magnitude.

Claim 17 covers the structure shown in FIGS. 3a and 3b but defines the various angles more narrowly than claim 1.

JP 48-27263 discloses a heat exchanger in which a corrugated strip 2 that is attached to circulating ducts 1 forms fins 3 and the fins 3 are provided with louvers 5 at an acute angle to the fins. In FIGS. 1-5 of JP 48-27263, the fins 3 are right angles to the longitudinal direction of the ducts 1 whereas in FIGS. 6 and 7 the fins are at an angle of about 85° to the longitudinal direction of the ducts 1.

The examiner's discussion of the anticipation rejection appears to be based on the assumption that claims 1 and 17 each require that the louvers be parallel to the airflow direction and at substantially equal angles to the fin. Claims 1 and 17 do not refer to the airflow

direction and therefore the examiner's discussion of the airflow direction is irrelevant to patentability of claims 1 and 17.

Claim 1 requires that the cooling element (the fin 11 in the case of the embodiment shown in FIGS. 3a and 3b) forms a substantially equal angle to the longitudinal direction of the circulating element (designated 14 in FIGS. 3a and 3b) as the louvers (12) form to the surface of the cooling element (11).

In order for JP 48-27263 to meet the limitations of claim 1, it would be necessary for the angle between the louvers 5 and the fins 3 (shown in FIG. 5 to be about 20° and in FIG. 6 to be about 5°) to be substantially equal to the angle between the fins 3 and the longitudinal direction of the ducts 1. Since the latter angle is shown as being about 85° or 90°, applicant submits that JP 48-27263 does not anticipate claim 1.

In support of the obviousness rejection, the examiner merely says that it would be obvious to employ any desired angles to achieve a desired heat exchange and/or pressure drop, since an increase in angle relative to the airflow increases the pressure drop and the heat exchange. Applicant believes that the examiner has misstated the issue. Since claim 1 says nothing about the airflow direction, arguments regarding angle relative to airflow are irrelevant to patentability of claim 1.

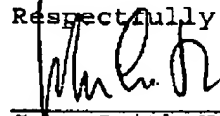
In response to applicant's arguments, the examiner states that "the invention is not merely substantially equal angled fins and louvers, rather the combination of the louvers being parallel to the airflow direction and being substantially equal angled to the fins." Since claim 1 does not refer to the airflow direction, it is requested that the examiner should consider patentability of the claim based on the claimed structure and without reading into the claim a limitation that the examiner invokes to support the rejection over the prior art.

The comments presented above in support of claim 1 apply to claim 17 also.

In view of the foregoing, applicant submits that the invention defined in the independent claims 1 and 17 is not disclosed or suggested by JP 48-27263. Therefore, the independent claims are patentable and it follows that the dependent claims also are patentable.

With regard to the examiner's comment concerning the rejection of claims 12-15, 18 and 20 over JP 48-27263 in view of applicant's alleged admission, since applicant contends that claim 1 is patentable, a specific response to the rejection of claims 12-15, 18 and 20 would be redundant, and lack of an argument in response to the rejection does not amount to acquiescence in the rejection.

Respectfully submitted,

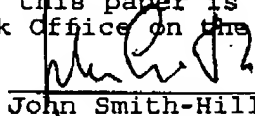


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